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Gravitational waves from high-power twisted light

Friday 8 December 2023 09:30 (12 minutes)

Recent advances in high-energy and high-peak-power laser systems have opened up new possibilities for fundamental physics research.
I propose to discuss the potential of twisted light for the generation of gravitational waves in the high frequency regime.
Focusing on Bessel beams, analytic expressions and numerical computations for the generated metric perturbations and associated powers are presented. Notably, we show that properties of the generated gravitational waves, such as frequency, polarisation states and direction of emission,
can be controllable by the laser pulse parameters and optical arrangements.
Based on: https://arxiv.org/pdf/2309.04191.pdf

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